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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,961	12/19/2001	Shunpei Yamazaki	740756-2410	7583
22204	7590	12/15/2003		
NIXON PEABODY, LLP 401 9TH STREET, NW SUITE 900 WASHINGTON, DC 20004-2128				
EXAMINER ISAAC, STANETTA D				
ART UNIT 2812		PAPER NUMBER		

DATE MAILED: 12/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/020,961		YAMAZAKI ET AL.	
	Examiner		Art Unit	
	Stanetta D. Isaac		2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-65 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-65 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet, 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet, 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-65 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Makita et al. US Patent 5,696,003 in view of Ueda et al. US Patent 6,337,259.

4. Pertaining to claims 1, 6, 12, 17, 23, 28, 34, 39, 45, 50, 55, and 60, Makita discloses a semiconductor method substantially as claimed. See **Figs. 1-29** where Makita teaches a method of manufacturing a semiconductor device comprising, the steps of:

adding a metal element **305** to a semiconductor film having an amorphous structure;
crystallizing the semiconductor film **307, 308** by a first heat treatment to form
crystalline, semiconductor film;

Pertaining to claims 6, 17, 28, 39, 50 and 60 specifically, irradiating the crystalline semiconductor film with laser light to improve crystallinity;

Pertaining to claims 23, 28, 34, and 39 specifically, forming a mask insulating film **304** having an opening on the crystalline semiconductor film;

Pertaining to claims 45, 50, 55, and 60 specifically. forming an island-like divided semiconductor region by etching the crystalline semiconductor film;

forming a gate insulating film and a gate electrode corresponding to the semiconductor region;

forming an impurity region(one conductivity type impurity element) and segregating (removing) the metal element in the impurity region containing the noble gas element by a second heat treatment.

5. However Makita fails the step of to which a noble gas element (accelerated by an electric field) is added in the crystalline semiconductor film. See **col. 7 lines 17-44; cols. 11-12 57-67 through to 1-20**, where Ueda teaches the step of to which a noble gas element is added in the crystalline semiconductor film. In view of Ueda it would have been obvious to one of ordinary skill in the art to incorporate Ueda into Makita semiconductor method because the region of the crystalline silicon film including the region into which the metallic element has been introduced, and thereafter the second heating process is performed in a non-oxidative atmosphere containing an inert gas whereby the metallic element is gettered into the element-introductory region.

6. Pertaining to claims 2, 7, 13, 18, 24, 29, 35, 40, 46, 51, 56, and 61, Makita teaches a method of manufacturing a semiconductor device according to claims 1, 6, 12, 17, 23, 28, 34, 39, 45, 50, 55, and 60, wherein the first heat treatment is performed by a rapid thermal anneal method using one heat source, selected from the group consisting of a halogen lamp, a metal halide lamp, a xenon arc lamp, and a carbon arc lamp.

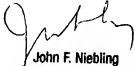
7. Pertaining to claims 3, 9, 14, 20, 25, 31, 37, 42, 48, 53, 58, and 63, Makita teaches a method of manufacturing a semiconductor device according to claims 1, 6, 12, 17, 23, 28, 34, 39, 45, 50, 55, and 60, wherein the second heat treatment is performed by a rapid thermal anneal method using one heat source selected from the group consisting of a halogen lamp, a metal halide lamp, a xenon arc lamp, and a carbon arc lamp.
8. Pertaining to claims 4, 10, 15, 21, 26, 32, 38, 43, 49, 54, 59, and 64, Makita teaches a method of manufacturing a semiconductor device according to claims 1, 6, 12, 17, 23, 28, 34, 39, 45, 50, 55, and 60, wherein the metal element is at least one selected from the group consisting of Fe, Ni, Co, Ru, Rh, Pd, Os, Ir, Pt, Cu, and Au.
9. Pertaining to claims 5, 11, 16, 22, 27, 33, 44, and 65, Makita teaches a method of manufacturing a semiconductor device according to claim 1, 6, 12, 17, 23, 28, 39, and 60 wherein the noble gas element is at least one selected from the group consisting of helium, neon, argon, krypton, and xenon.
10. Pertaining to claims 8, 19, 30, 36, 41, 47, 52, 57, and 62, Makita teaches a method of manufacturing a semiconductor device according to claim 6, 17, 28, 34, 39, 45, 50, 55, and 60, wherein the laser light is emitted using one selected from the group consisting of an excimer laser, a YAG laser, a YVO₄ laser, or a YLF laser.
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stanetta D. Isaac whose telephone number is 703-308-5871. The examiner can normally be reached on Monday-Friday 7:30am -5:30pm.

Art Unit: 2812

12. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Nebling can be reached on 703-308-3325. The fax phone number for the organization where this application or proceeding is assigned is 703-308-7722.

13. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Stanetta Isaac
Patent Examiner
December 3, 2003


John F. Niebling
Supervisory Patent Examiner
Technology Center 2800